

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

NETLIST, INC.,

Plaintiff,

v.

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC.
and SAMSUNG SEMICONDUCTOR, INC.,

Defendants.

Civil Case No. 2:21cv463-JRG

JURY TRIAL DEMANDED

SAMSUNG’S NOTICE PURSUANT TO 35 U.S.C. § 282

Pursuant to 35 U.S.C. § 282, Defendants Samsung Electronics Co., Ltd., Samsung Electronics America, Inc. and Samsung Semiconductor, Inc., (collectively, “Samsung”), provide notice that in the trial of the above-captioned matters, Samsung may rely on one or more of the prior art references identified in this Notice, either alone or in combination.

Samsung has already provided notice to Plaintiff Netlist, Inc. (“Netlist”) of the identity of certain publications, patents, and persons within the ambit of § 282 through the pleadings and correspondence in this case, including, but not limited to, invalidity contentions, expert witness reports, testimony, responses to interrogatories, disclosures under Rule 26, the Discovery Order, and the Local Patent Rules, and material disclosed in trial exhibit lists. Samsung expressly incorporates herein by reference all of the publications, patents, and specification of persons within the ambit of § 282 previously cited in these pleadings, testimony, expert reports, correspondence and other materials. Samsung also reserves the right to rely on any description of the prior art within the specifications of the asserted patents or items of prior art cited on their

face. Samsung reserves the right to amend and/or supplement this Notice to add items to this statement that were inadvertently omitted. In addition to each of the following identified prior art references, Samsung may rely on the applicant's admitted prior art for each of the Asserted Patents.

Prior Art to Asserted 8,787,060

A. U.S. Patents

Number	Filing Date	Issue Date	Named Inventors	Original Assignees
3,044,909	Oct. 23, 1958	July 17, 1962	W. Shockley	n/a
3,343,256	Dec. 28, 1964	Sept. 26, 1967	Merlin G. Smith; Emanuel Stern	International Business Machines Corporation
3,648,131	Nov. 7, 1969	Mar. 7, 1972	Kenneth P. Stuby	International Business Machines Corporation
3,651,490	June 8, 1970	Mar. 21, 1972	Katsuhiro Onoda; Ryo Igarashi; Toshlo Wada; Sho Nakanuma; Toru Tsujide	Nippon Electric Co., Ltd.
5,793,115	Sep. 29, 1994	Aug. 11, 1998	Paul M. Zawracky; Matthew Zavracky; Duy- Phach Wu; Brenda Dingle	Kopin Corporation
6,222,276	Apr. 7, 1998	Apr. 24, 2001	Claude Louis Bertin; Wayne John Howell; William R. Tonti; Jerzy Maria Zalesinski	International Business Machines Corporation

Number	Filing Date	Issue Date	Named Inventors	Original Assignees
6,243,283	Jun. 7, 2000	Jun. 5, 2001	Claude Louis Bertin; John A. Fifield; Erik Leigh Hedberg; Russell J. Houghton; Timothy Dooling Sullivan; Steven William Tomashot; William R. Tonti	International Business Machines Corporation
7,123,497	Apr. 21, 2004	Oct. 17, 2006	Yoshinori Matsui; Toshio Sugano; Hiroaki Ikeda	Elpida Memory, Inc.
7,209,376	Jun. 14, 2005	Apr. 24, 2007	Hideaki Saito; Yasuhiko Hagihara; Muneo Fukaishi; Masayuki Mizuno; Hiroaki Ikeda; Kayoko Shibata	NEC Corporation; Elpida Memory, Inc.
7,623,365	Aug. 29, 2007	Nov. 24, 2009	Joe M. Jeddeloh	Micron Technology, Inc.
7,633,165	Sep. 8, 2008	Dec. 15, 2009	Kuo-Ching Hsu; Chen-Shien Chen; Boe Su; Hon-Lin Huang	Taiwan Semiconductor Manufacturing Company, Ltd.
7,683,459	Jun. 2, 2008	Mar. 23, 2010	Wei Ma; Xunqing Shu; Chang Hwa Chung	Hong Kong Applied Science and Technology Research Institute Company, Ltd.

Number	Filing Date	Issue Date	Named Inventors	Original Assignees
7,796,446	Sep.19, 2008	Sep. 14, 2010	Hermann Ruckerbauer; Michael Bruennert; Ullrich Menczigar; Christian Mueller; Sitt Tontsirin; Georg Braun; Dominique Savignac	Qimonda AG
7,952,201	Apr. 13, 2010	May 31, 2011	Kayoko Shibata; Hiroaki Ikeda	Elpida Memory, Inc.
7,969,192	Mar. 26, 2010	Jun. 28, 2011	Theodore J. Wyman; John Treza	Cufer Asset Ltd. L.L.C.
8,054,664	Dec. 15, 2009	Nov. 8, 2011	Shiro Harashima; Wataru Tsukada	Elpida Memory, Inc.
8,174,859	Nov. 16, 2009	May 8, 2012	Joe M. Jeddeloh	Micron Technology, Inc.
8,243,488	Oct. 11, 2011	Aug. 14, 2012	Shiro Harashima; Wataru Tsukada	Elpida Memory, Inc.
8,275,936	Sep. 21,2009	Sep. 25, 2012	Christopher Haywood; Gopal Raghavan; Chao Xu	Inphi Corporation
8,347,057	Aug.13, 2010	Jan. 1, 2013	Yoji Nishio; Takao Ono	Elpida Memory, Inc.
8,462,535	Jul. 16, 2012	Jun. 11, 2013	Shiro Harashima; Wataru Tsukada	Elpida Memory, Inc.
8,473,653	Oct. 5, 2010	Jun. 25, 2013	Chikara Kondo; Naohisa Nishioka	Elpida Memory, Inc.
8,593,849	Nov. 27, 2012	Nov. 26, 2013	Joe M. Jeddeloh	Micron Technology, Inc.
8,593,891	Sep. 22, 2011	Nov. 26, 2013	Naohisa Nishioka	Elpida Memory, Inc.
8,693,277	Jan.10,2012	Apr. 8, 2014	Junichi Hayashi	Elpida Memory, Inc.
8,788,738	Dec. 5, 2011	Jul. 22, 2014	Yoshiro Riho	n/a
8,885,380	Aug. 12, 2011	Nov. 11, 2014	Uk-song Kang; Young-hyun Jun; Joo-sun Choi	Samsung Electronics Co., Ltd.

Number	Filing Date	Issue Date	Named Inventors	Original Assignees
9,035,444	Jun. 11, 2012	May 19, 2015	Homare Sato	PS4 Luxco S.a.r.l.
9,160,349	Aug. 27, 2009	Oct. 13, 2015	Yantao Ma	Micron Technology, Inc.

B. U.S. Patent Application Publications

Number	Filing Date	Publication Date	Named Inventors
2008/0025137	Jul. 31, 2006	Jan. 31, 2008	Suresh Natarajan Rajan; Keith R. Schakel; Michael John Sebastian Smith; David T. Wang; Frederick Daniel Weber
2010/0110745	Oct. 30, 2008	May 6, 2010	Joe M. Jeddeloh; Paul A. LaBerge
2011/0103156	Dec. 29, 2009	May 5, 2011	Jae Ii Kim; Jong Chern Lee

C. Non-Patent Publications

Title	Publication Date	Page Nos.
[1986, Akasaka-1] Yoichi Akasaka “Three-Dimensional IC Trends”	December 1986	All
[1986, Akasaka-2] “Concept and Basic Technologies for 3-D IC Structure”	1986	All
[1991, Harter] Andrew Harter “Three-Dimensional Integrated Circuit Layout”	1991	All
[1995, Robins] “Three-Dimensional Field Programmable Gate Arrays”	1995	All
[1996, Alexander] “High-Performance Routing Algorithms for Field-Programmable Gate Arrays,” doctoral dissertation on 3D die stacking	August 1996	All
[1996, Robins] “Placement and Routing for Three-Dimensional FPGAs”	1996	All
[2000, Karro] John Karro, “Algorithmic and Theoretical Problems Related to the Physical Design of Three Dimensional Field Programmable Gate Arrays”	August 2000	All
[2000, Savastiouk-1] Sergey Savastiouk et al., “Thru-Silicon Interconnect Technology”	2000	All
[2004, Vogt] “Fully Buffered DIMM (FB-DIMM) Server Memory Architecture: Capacity, Performance, Reliability, and Longevity”	February 18, 2004	All
[2005, Nasr] Rami Nasr “FBSIM and the Fully Buffered DIMM Memory System Architecture.”	2005	All
[2008, Garrou] Garrou et al “Handbook of 3D Integration”	2008	All
[2008, Jacob] Jacob, Memory Systems Cache, DRAM, Disk	2008	All

Title	Publication Date	Page Nos.
[2008, Tan] Wafer Level 3-D ICs Process Technology	2008	All
[2009, Brown] Fundamentals of Digital Logic with VHDL Design, Third Edition	2009	All
[2009, Micron] Registered DIMM (RDIMM), DDR3 1.5V SDRAM RDIMM, 2GB, Data Sheet, one of Micron's early RDIMM products	2009	All
[2009, Pavlidis] Pavlidis and Friedman "Three-dimensional Integrated Circuit Design (Systems on Silicon)."	2009	All
[2010, Inphi] "Enabling Cloud Computing and Server Virtualization with Improved Power Efficiency"	2010	All
[2010, Micron] Load Reduced DIMM, DDR3 1.35V SDRAM LRDIMM, 32GB (part number MT72JSZS4G72LZ), Data Sheet, one of Micron's early LRDIMM products	2010	All
[2011, Campardo] "Memory Mass Storage"	2011	All
[2011, Papanikolaou] Papanikolaou et al "Three Dimensional System Integration - IC Stacking Process and Design"	2011	All
[2011, Washkewicz and JEDEC] DDR3 Memory Buffer - Buffer at the Heart of the LRDIMM Architecture	2011	All
Committee Item Number 1777.18, Future Mobile Memory (FMM) Wide I/O Refresh Scheme, Second Showing	September 2010	All
Committee Item Number 1777.29, Wide I/O Ball Map Baseline Proposal, First Showing	June 7, 2010	All
Committee Item Number 1787.05, TSV Tile Memory Clocking & Command, Second Showing	April 2011	All
Committee Item Number 1797.00, Future High Bandwidth Memory TG, TG Report	September 2011	All

D. Prior Art Systems and Inventions Known or Used by Others¹

Title/Description	Date of Use/Knowledge	Page Numbers
[2006, JEDEC] Instrumentation Chip Data Sheet for FBDIMM Diagnostic Senselines (JESD82-22)	November 2006	All
[2007, JEDEC] Appendix X-Serial Presence Detect (SPD) for Fully Buffered DIMM (Standard 21-C)	2007	All
[2007, JEDEC] FBDIMM - Architecture and Protocol Standard (JESD206)	January 2007	All

¹ Samsung's identification of prior art in this section should not be construed as an admission that such prior art does not also qualify as another category of prior art such as a printed publication.

Title/Description	Date of Use/Knowledge	Page Numbers
[2007, JEDEC] FBDIMM Specification - DDR2 SDRAM Fully Buffered DIMM (FBDIMM) Design Specification (JESD205)	March 2007	All
[2008, JEDEC] FBDIMM Specification - High Speed Differential PTP Link at 1.5 V (JESD8-18A)	March 2008	All
[2008, JEDEC] Fully Buffered DIMM Design for Test, Design for Validation (DFx) (JESD82-28A)	July 2008	All
[2009, JEDEC - TSVs] “3D Chip Stack with Through-Silicon Vias (TSVS) - Identifying, Evaluating, and Understanding Reliability Interactions.”	November 2009	All
[2009, JEDEC] “MIPI M-PHY Future Mobile PHY Proposal,” Committee Item Number 1776.10, Second Showing	September 2009	All
[2009, JEDEC] “Wide-IO TG Report,” Committee Item Number 1777.00	December 2009	All
[2009, JEDEC] FBDIMM Advanced Memory Buffer (AMB) (JESD82-20A)	March 2009	All
[2010, JEDEC] “A Stackable, Configurable Memory Sheet for ASICs: First Showing,” “Committee Item Number 1787.01”	Sept. 13, 2010	All
[2010, JEDEC] “Advanced Memory Package Proposal,” First Showing	March 2010	All
[2010, JEDEC] “FMD – Wide I/O TG, Read Clock Proposal”	March 2010	All
[2011, JEDEC] “Future High Bandwidth Memory TG,” Item# 1797.00, TG42_1: TG Report	2011	All
[2011, JEDEC] “Server Memory Trends - Past and Future	2011	All

Prior Art to Asserted 9,318,160

A. U.S. Patents

Number	Filing Date	Issue Date	Named Inventors	Original Assignees
3,044,909	Oct. 23, 1958	July 17, 1962	W. Shockley	n/a
3,343,256	Dec. 28, 1964	Sept. 26, 1967	Merlin G. Smith; Emanuel Stern	International Business Machines Corporation
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8,275,936	Sep. 21,2009	Sep. 25, 2012	Christopher Haywood; Gopal Raghavan; Chao Xu	Inphi Corporation
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8,593,891	Sep. 22, 2011	Nov. 26, 2013	Naohisa Nishioka	Elpida Memory, Inc.
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8,788,738	Dec. 5, 2011	Jul. 22, 2014	Yoshiro Riho	n/a
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[1986, Akasaka-1] Yoichi Akasaka “Three-Dimensional IC Trends”	December 1986	All
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[2000, Karro] John Karro, “Algorithmic and Theoretical Problems Related to the Physical Design of Three Dimensional Field Programmable Gate Arrays”	August 2000	All
[2000, Savastiouk-1] Sergey Savastiouk et al., “Thru-Silicon Interconnect Technology”	2000	All
[2004, Vogt] “Fully Buffered DIMM (FB-DIMM) Server Memory Architecture: Capacity, Performance, Reliability, and Longevity”	February 18, 2004	All
[2005, Nasr] Rami Nasr “FBSIM and the Fully Buffered DIMM Memory System Architecture.”	2005	All
[2008, Garrou] Garrou et al “Handbook of 3D Integration”	2008	All
[2008, Jacob] Jacob, Memory Systems Cache, DRAM, Disk	2008	All
[2008, Tan] Wafer Level 3-D ICs Process Technology	2008	All
[2009, Brown] Fundamentals of Digital Logic with VHDL Design, Third Edition	2009	All

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[2009, Micron] Registered DIMM (RDIMM), DDR3 1.5V SDRAM RDIMM, 2GB, Data Sheet, one of Micron's early RDIMM products	2009	All
[2009, Pavlidis] Pavlidis and Friedman "Three-dimensional Integrated Circuit Design (Systems on Silicon)."	2009	All
[2010, Inphi] "Enabling Cloud Computing and Server Virtualization with Improved Power Efficiency"	2010	All
[2010, Micron] Load Reduced DIMM, DDR3 1.35V SDRAM LRDIMM, 32GB (part number MT72JSZS4G72LZ), Data Sheet, one of Micron's early LRDIMM products	2010	All
[2011, Campardo] "Memory Mass Storage"	2011	All
[2011, Papanikolaou] Papanikolaou et al "Three Dimensional System Integration - IC Stacking Process and Design"	2011	All
[2011, Washkewicz and JEDEC] DDR3 Memory Buffer - Buffer at the Heart of the LRDIMM Architecture	2011	All
Committee Item Number 1777.18, Future Mobile Memory (FMM) Wide I/O Refresh Scheme, Second Showing	September 2010	All
Committee Item Number 1777.29, Wide I/O Ball Map Baseline Proposal, First Showing	June 7, 2010	All
Committee Item Number 1787.05, TSV Tile Memory Clocking & Command, Second Showing	April 2011	All
Committee Item Number 1797.00, Future High Bandwidth Memory TG, TG Report	September 2011	All

D. Prior Art Systems and Inventions Known or Used by Others²

Title/Description	Date of Use/Knowledge	Page Numbers
[2006, JEDEC] Instrumentation Chip Data Sheet for FBDIMM Diagnostic Senselines (JESD82-22)	November 2006	All
[2007, JEDEC] Appendix X-Serial Presence Detect (SPD) for Fully Buffered DIMM (Standard 21-C)	2007	All
[2007, JEDEC] FBDIMM - Architecture and Protocol Standard (JESD206)	January 2007	All
[2007, JEDEC] FBDIMM Specification - DDR2 SDRAM Fully Buffered DIMM (FBDIMM) Design Specification (JESD205)	March 2007	All
[2008, JEDEC] FBDIMM Specification - High Speed Differential PTP Link at 1.5 V (JESD8-18A)	March 2008	All

² Samsung's identification of prior art in this section should not be construed as an admission that such prior art does not also qualify as another category of prior art such as a printed publication.

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[2008, JEDEC] Fully Buffered DIMM Design for Test, Design for Validation (DFx) (JESD82-28A)	July 2008	All
[2009, JEDEC - TSVs] “3D Chip Stack with Through-Silicon Vias (TSVS) - Identifying, Evaluating, and Understanding Reliability Interactions.”	November 2009	All
[2009, JEDEC] “MIPI M-PHY Future Mobile PHY Proposal,” Committee Item Number 1776.10, Second Showing	September 2009	All
[2009, JEDEC] “Wide-IO TG Report,” Committee Item Number 1777.00	December 2009	All
[2009, JEDEC] FBDIMM Advanced Memory Buffer (AMB) (JESD82-20A)	March 2009	All
[2010, JEDEC] “A Stackable, Configurable Memory Sheet for ASICs: First Showing,” “Committee Item Number 1787.01”	Sept. 13, 2010	All
[2010, JEDEC] “Advanced Memory Package Proposal,” First Showing	March 2010	All
[2010, JEDEC] “FMD – Wide I/O TG, Read Clock Proposal”	March 2010	All
[2011, JEDEC] “Future High Bandwidth Memory TG,” Item# 1797.00, TG42 1: TG Report	2011	All
[2011, JEDEC] “Server Memory Trends - Past and Future	2011	All

Prior Art to Asserted 10,860,506

A. U.S. Patents

Number	Filing Date	Issue Date	Named Inventors	Original Assignees
8,001,434	Apr. 13, 2009	Aug. 16, 2011	Hyun Lee; Jayesh R. Bhakta; Soonju Choi	Netlist, Inc.
8,054,664	Dec. 15, 2009	Nov. 8, 2011	Shiro Harashima; Wataru Tsukada	Elpida Memory, Inc.
8,130,560	Nov 13, 2007	Mar. 6, 2012	Suresb Natorajan Rajan; Michael John Sebastian Smith	Google Inc.
8,243,488	Oct. 11, 2011	Aug. 14, 2012	Shiro Harashima; Wataru Tsukada	Elpida Memory, Inc.

Number	Filing Date	Issue Date	Named Inventors	Original Assignees
8,275,936	Sep. 21, 2009	Sep. 25, 2012	Christopher Haywood; Gopal Raghavan; Chao Xu	Inphi Corporation
8,347,057	Aug. 13, 2010	Jan. 1, 2013	Yoji Nishio; Takao Ono	Elpida Memory, Inc.
8,462,535	Jul. 16, 2012	Jun. 11, 2013	Shiro Harashima; Wataru Tsukada	Elpida Memory, Inc.

B. U.S. Patent Application Publications

Number	Filing Date	Publication Date	Named Inventors
2006/0277355	Jun. 1, 2005	Dec. 7, 2006	Mark Ellsberry; Paul Sweere; Michael Sansur; Grant Stockton
2007/0008791	Jul. 7, 2005	Jan. 11, 2007	Derrick Sai-Tang Butt; Hui-Yin Seto
2010/0312956	Jun. 3, 2010	Dec. 9, 2010	Atsushi Hiraishi; Toshio Sugano; Fumiyuki Osanai; Masayuki Nakamura; Hiroki Fujisawa; Shunichi Saito

C. Non-Patent Publications

Title	Publication Date	Page Numbers
[1945, von Neumann] "First Draft of a Report on the EDVAC"	1945	All
[1977, Scientific American]	1977	All
[1978, Backus] John Backus (1924-2007) 1977 ACM Turing Award lecture	Aug. 1978	All
[1983, Prince] "Semiconductor Memories"	1983	All
[1994, Markus] McGraw-Hill Electronics Dictionary, Fifth Edition	1994	All
[1994, Wulf] Bill Wulf "Hitting the Memory Wall: Implications of the Obvious."	Dec. 1994	All
[1999, Graf] Modern Dictionary of Electronics, Seventh Edition	1999	All
[2000, IEEE] The Authoritative Dictionary of IEEE Standards Terms, Seventh Edition	2000	All
[2001, Gibilisco] The Illustrated Dictionary of Electronics, Eighth Edition	2001	All

Title	Publication Date	Page Numbers
[2004, Vogt] “Fully Buffered DIMM (FB-DIMM) Server Memory Architecture: Capacity, Performance, Reliability, and Longevity”	February 18, 2004	All
[2005, Haas] “Fully-Buffered DIMM Technology Moves Enterprise Platforms to the Next Level” authored by Jon Haas, https://web.archive.org/web/20060107230729/http://www.intel.com/technology/magazine/computing/fully-buffered-dimm-0305.htm	March 2005	All
[2005, Laplante] Comprehensive Dictionary of Electrical Engineering, Second Edition	2005	All
[2005, Nasr] Rami Nasr “FBSIM and the Fully Buffered DIMM Memory System Architecture.”	2005	All
[2007, Chen] “The VLSI Handbook, Second Edition,”	2007	All
[2008, Garrou] Garrou et al “Handbook of 3D Integration”	2008	All
[2008, Jacob] Jacob, Memory Systems Cache, DRAM, Disk	2008	All
[2008, Samsung] DDR3 SDRAM Specification, 240-pin Registered DIMM Based on 1 Gb D-Die 72-bit ECC, one of Samsung’s early RDIMM products	Aug. 2008	All
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[2009, Micron] “Micron Introduces a New Way to Increase Server Memory Capacity and Improve Performance” , July, 2009, https://investors.micron.com/news-releases/news-release-details/micron-introduces-new-way-increase-server-memory-capacity-and	July 30, 2009	All
[2009, Micron] “Micron's LRDIMM Redefines Server Memory Modules”, July, 2009, https://hothardware.com/news/microns-lrdimm-redefines-server-memory-modules	July 31, 2009	All
[2009, Micron] Registered DIMM (RDIMM), DDR3 1.5V SDRAM RDIMM, 2GB, Data Sheet, one of Micron’s early RDIMM products	2009	All
[2009, Samsung] Samsung Semiconductor Product Selection Guide - Memory and Storage	Jan. 2009	All
[2010, Inphi] “Enabling Cloud Computing and Server Virtualization with Improved Power Efficiency”	2010	All
[2010, Micron] Load Reduced DIMM, DDR3 1.35V SDRAM LRDIMM, 32GB (part number MT72JSZS4G72LZ), Data Sheet, one of Micron’s early LRDIMM products	2010	All
[2011, Inphi] “Inphi to Present at JEDEC's Server Memory Forum 2011”, https://www.globenewswire.com/en/news-release/2011/10/27/1058510/0/en/Inphi-to-Present-at-JEDEC-s-Server-Memory-Forum-2011.html	Oct. 27, 2011	All

Title	Publication Date	Page Numbers
https://phys.org/news/2005-02-samsung-world-ddr-memory-prototype.html	Feb. 17, 2005	All
https://www.eetimes.com/micron-rolls-ddr3-lrdimm/ , “Micron rolls DDR3 LRDIMM”, July, 2009	July 30, 2009	All

D. Prior Art Systems and Inventions Known or Used by Others³

Title/Description	Date of Use/Knowledge	Page Numbers
[2001, JEDEC] “Terms, Definitions, and Letter Symbols for Microcomputers, Microprocessors, and Memory Integrated Circuits” (JEDEC Standard JESD100B.01)	Dec. 2002	All
[2002, JEDEC] PC133 SDRAM Registered DIMM Design Specification, Revision 1.4 (Standard 21-C)	Feb. 2002	All
[2003, Samsung] 256 MB DIMM, with eight DDR SDRAM memory chips, 133 MHz, part number M366S3253ETS-C7A	2003	
[2006, JEDEC] Instrumentation Chip Data Sheet for FBDIMM Diagnostic Senselines (JESD82-22)	November 2006	All
[2006, JEDEC] PC2-4200, PC2-3200 DDR2 Registered Mini-DIMM Design Specification, Revision 2.0	Aug. 2006	All
[2007, JEDEC] “Terms, Definitions, and Letter Symbols for Microelectronic Devices” (Standard JESD99B)	May 2007	All
[2007, JEDEC] Appendix X-Serial Presence Detect (SPD) for Fully Buffered DIMM (Standard 21-C)	2007	All
[2007, JEDEC] FBDIMM - Architecture and Protocol Standard (JESD206)	January 2007	All
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[2009, JEDEC] FBDIMM Advanced Memory Buffer (AMB) (JESD82-20A)	March 2009	All

³ Samsung’s identification of prior art in this section should not be construed as an admission that such prior art does not also qualify as another category of prior art such as a printed publication.

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[2010, JEDEC] PC2-6400, PC2-5300, PC2-4200, PC2-3200 Registered DIMM Design Specification, Revision 4.04	Jan. 2010	All
[2011, JEDEC] “Server Memory Trends - Past and Future	2011	All
[2011, Washkewicz and JEDEC] DDR3 Memory Buffer - Buffer at the Heart of the LRDIMM Architecture	2011	All
Committee Item Number 0311.12, Proposed DDR4 DB Buffer Control Words, Second Showing (“Committee Item Number 0311.12”)	March 2012	All
Committee Item Number 0311.13, Proposed DDR4 DB BCOM Protocol, Second Showing (“Committee Item Number 0311.13”)	March 2012	All
Committee Item Number 0311.14, Proposed DDR4 DB Training Mode, Second Showing (“Committee Item Number 0311.14”)	March 2012	All
Committee Item Number 142.62B, Proposed JEDEC Standard LRDIMM DDR3 Memory Buffer Specification, JESD82-xx v.0.95b, Committee Letter Ballot (“Committee Item Number 142.62B”)	September 2011	All
Committee Item Number 158.01, Proposed DDR4 LRDIMM Proposal, 2nd Showing, (“Committee Item Number 158.01”)	March 2011	All
Kentron Quad Band Memory (QBM) QBM2 Overview: Technical Features (“QBM2 Technical Features Overview”)	Dec. 30, 2004	All
Kentron Quad Band Memory (QBM) Specification Rev. 0.93 (“QBM Specification Rev. 0.93”)		All
Kentron Quad Band Memory (QBM), QBMII Technology Overview (“QBM2 Technology Overview”)	Aug. 20, 2004	All
Kentron, Buffered DIMM Proposal for DDRII: Quad Band Memory (QBM), Interim JEDEC Meeting (“QBM Interim JEDEC Meeting”)	July 14-15, 2003	All
Samsung DDR2 Fully Buffered DIMM, 240pin FBDIMMs based on 512Mb E-die, Rev. 1.51	January 2008	All

E. Persons Who May Be Relied Upon

Prior Art System / Invention Known or Used by Others	Name
Quad Band Memory (QBM) System (“QBM”)	Kentron Technologies Inc. employee(s) (<i>e.g.</i> , Chris Karabatsos, Vasilios Karabatsos, Bob Goodman, Badawi Dweik)
Series of proposals sponsored by Intel and presented in JEDEC meetings in March 2011, September 2011, and March 2012 (“the 2011-2012 JEDEC Proposals”), including: <ul style="list-style-type: none"> Committee Item Number 142.62B Committee Item Number 158.01 Committee Item Number 0311.12 Committee Item Number 0311.13 Committee Item Number 0311.14 	Entities and persons attending JEDEC committee meetings where related technology was discussed (including the JC-40 and JC-45 committee meetings). For example: <ul style="list-style-type: none"> One or more employees of Intel

Prior Art to Asserted 10,949,339**A. U.S. Patents**

Number	Filing Date	Issue Date	Named Inventors	Original Assignees
7,024,518	Mar. 13, 2002	Apr. 4, 2006	John B. Halbert; James M. Dodd	Intel Corporation
7,289,386	Jul. 1, 2005	Oct. 30, 2007	Jayesh R. Bhakta; Jeffrey C. Solomon	Netlist, Inc.
7,532,537	Jan. 19, 2006	May 12, 2009	Jeffrey C. Solomon; Jayesh R. Bhakta	Netlist, Inc.
8,054,664	Dec. 15, 2009	Nov. 8, 2011	Shiro Harashima; Wataru Tsukada	Elpida Memory, Inc.
8,130,560	Nov 13, 2007	Mar. 6, 2012	Suresb Natorajan Rajan; Michael John Sebastian Smith	Google Inc.
8,243,488	Oct. 11, 2011	Aug. 14, 2012	Shiro Harashima; Wataru Tsukada	Elpida Memory, Inc.

Number	Filing Date	Issue Date	Named Inventors	Original Assignees
8,275,936	Sep. 21, 2009	Sep. 25, 2012	Christopher Haywood; Gopal Raghavan; Chao Xu	Inphi Corporation
8,347,057	Aug. 13, 2010	Jan. 1, 2013	Yoji Nishio; Takao Ono	Elpida Memory, Inc.
8,462,535	Jul. 16, 2012	Jun. 11, 2013	Shiro Harashima; Wataru Tsukada	Elpida Memory, Inc.

B. U.S. Patent Application Publications

Number	Filing Date	Publication Date	Named Inventors
2006/0277355	Jun. 1, 2005	Dec. 7, 2006	Mark Ellsberry; Paul Sweere; Michael Sansur; Grant Stockton

C. Non-Patent Publications

Title	Publication Date	Page Numbers
[1945, von Neumann] "First Draft of a Report on the EDVAC"	1945	All
[1977, Scientific American]	1977	All
[1978, Backus] John Backus (1924-2007) 1977 ACM Turing Award lecture	Aug. 1978	All
[1983, Prince] "Semiconductor Memories"	1983	All
[1994, Markus] McGraw-Hill Electronics Dictionary, Fifth Edition	1994	All
[1994, Wulf] Bill Wulf "Hitting the Memory Wall: Implications of the Obvious."	Dec. 1994	All
[1999, Graf] Modern Dictionary of Electronics, Seventh Edition	1999	All
[2000, IEEE] The Authoritative Dictionary of IEEE Standards Terms, Seventh Edition	2000	All
[2001, Gibilisco] The Illustrated Dictionary of Electronics, Eighth Edition	2001	All
[2004, Vogt] "Fully Buffered DIMM (FB-DIMM) Server Memory Architecture: Capacity, Performance, Reliability, and Longevity"	February 18, 2004	All
[2005, Haas] "Fully-Buffered DIMM Technology Moves Enterprise Platforms to the Next Level" authored by Jon Haas, https://web.archive.org/web/20060107230729/http://www.intel.com/technology/magazine/computing/fully-buffered-dimm-0305.htm	March 2005	All

Title	Publication Date	Page Numbers
[2005, Laplante] Comprehensive Dictionary of Electrical Engineering, Second Edition	2005	All
[2005, Nasr] Rami Nasr “FBSIM and the Fully Buffered DIMM Memory System Architecture.”	2005	All
[2007, Chen] “The VLSI Handbook, Second Edition,”	2007	All
[2008, Garrou] Garrou et al “Handbook of 3D Integration”	2008	All
[2008, Jacob] Jacob, Memory Systems Cache, DRAM, Disk	2008	All
[2008, Samsung] DDR3 SDRAM Specification, 240-pin Registered DIMM Based on 1 Gb D-Die 72-bit ECC, one of Samsung’s early RDIMM products	Aug. 2008	All
[2008, Tan] Wafer Level 3-D ICs Process Technology	2008	All
[2009, Micron] “Micron Introduces a New Way to Increase Server Memory Capacity and Improve Performance”], July, 2009, https://investors.micron.com/news-releases/news-release-details/micron-introduces-new-way-increase-server-memory-capacity-and	July 30, 2009	All
[2009, Micron] “Micron's LRDIMM Redefines Server Memory Modules”, July, 2009, https://hothardware.com/news/microns-lrdimm-redefines-server-memory-modules	July 31, 2009	All
[2009, Micron] Registered DIMM (RDIMM), DDR3 1.5V SDRAM RDIMM, 2GB, Data Sheet, one of Micron’s early RDIMM products	2009	All
[2009, Samsung] Samsung Semiconductor Product Selection Guide - Memory and Storage	Jan. 2009	All
[2010, Inphi] “Enabling Cloud Computing and Server Virtualization with Improved Power Efficiency”	2010	All
[2010, Micron] Load Reduced DIMM, DDR3 1.35V SDRAM LRDIMM, 32GB (part number MT72JSZS4G72LZ), Data Sheet, one of Micron’s early LRDIMM products	2010	All
[2011, Inphi] “Inphi to Present at JEDEC's Server Memory Forum 2011”, https://www.globenewswire.com/en/news-release/2011/10/27/1058510/0/en/Inphi-to-Present-at-JEDEC-s-Server-Memory-Forum-2011.html	Oct. 27, 2011	All
https://phys.org/news/2005-02-samsung-world-ddr-memory-prototype.html	Feb. 17, 2005	All
https://www.eetimes.com/micron-rolls-ddr3-lrdimm/ , “Micron rolls DDR3 LRDIMM”, July, 2009	July 30, 2009	All

D. Prior Art Systems and Inventions Known or Used by Others⁴

Title/Description	Date of Use/Knowledge	Page Numbers
[2001, JEDEC] “Terms, Definitions, and Letter Symbols for Microcomputers, Microprocessors, and Memory Integrated Circuits” (JEDEC Standard JESD100B.01)	Dec. 2002	All
[2002, JEDEC] PC133 SDRAM Registered DIMM Design Specification, Revision 1.4 (Standard 21-C)	Feb. 2002	All
[2003, Samsung] 256 MB DIMM, with eight DDR SDRAM memory chips, 133 MHz, part number M366S3253ETS-C7A	2003	
[2006, JEDEC] Instrumentation Chip Data Sheet for FBDIMM Diagnostic Senselines (JESD82-22)	November 2006	All
[2006, JEDEC] PC2-4200, PC2-3200 DDR2 Registered Mini-DIMM Design Specification, Revision 2.0	Aug. 2006	All
[2007, JEDEC] “Terms, Definitions, and Letter Symbols for Microelectronic Devices” (Standard JESD99B)	May 2007	All
[2007, JEDEC] Appendix X-Serial Presence Detect (SPD) for Fully Buffered DIMM (Standard 21-C)	2007	All
[2007, JEDEC] FBDIMM - Architecture and Protocol Standard (JESD206)	January 2007	All
[2007, JEDEC] FBDIMM Specification - DDR2 SDRAM Fully Buffered DIMM (FBDIMM) Design Specification (JESD205)	March 2007	All
[2008, JEDEC] FBDIMM Specification - High Speed Differential PTP Link at 1.5 V (JESD8-18A)	March 2008	All
[2008, JEDEC] Fully Buffered DIMM Design for Test, Design for Validation (DFx) (JESD82-28A)	July 2008	All
[2009, JEDEC] FBDIMM Advanced Memory Buffer (AMB) (JESD82-20A)	March 2009	All
[2010, JEDEC] PC2-6400, PC2-5300, PC2-4200, PC2-3200 Registered DIMM Design Specification, Revision 4.04	Jan. 2010	All

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Title/Description	Date of Use/Knowledge	Page Numbers
[2011, JEDEC] "Server Memory Trends - Past and Future"	2011	All
[2011, Washkewicz and JEDEC] DDR3 Memory Buffer - Buffer at the Heart of the LRDIMM Architecture	2011	All
Committee Item Number 2192.21, Proposal for DDR3 LR-DIMM Comparison, First Showing ("Committee Item Number 2192.21")	December 2008	All
Committee Item Number 2192.22, Proposal for DDR3 LR-DIMM Placement, Second Showing ("Committee Item Number 2192.22")	February 2009	All
Committee Item Number 2192.32, Proposal for Twin Buffered QR x4 LP DDR3 LR-DIMM, First Showing ("Committee Item Number 2192.32")	February 2009	All
Committee Item Number 2204.03, Proposal for iMB Based DDR4 LR-DIMM ("Committee Item Number 2204.03")	February 2009	All
Kentron Quad Band Memory (QBM) QBM2 Overview: Technical Features ("QBM2 Technical Features Overview")	Dec. 30, 2004	All
Kentron Quad Band Memory (QBM) Specification Rev. 0.93 ("QBM Specification Rev. 0.93")		All
Kentron Quad Band Memory (QBM), QBMII Technology Overview ("QBM2 Technology Overview")	Aug. 20, 2004	All
Kentron, Buffered DIMM Proposal for DDRII: Quad Band Memory (QBM), Interim JEDEC Meeting ("QBM Interim JEDEC Meeting")	July 14-15, 2003	All
Samsung DDR2 Fully Buffered DIMM, 240pin FBDIMMs based on 512Mb E-die, Rev. 1.51	January 2008	All

E. Persons Who May Be Relied Upon

Prior Art System / Invention Known or Used by Others	Name
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Series of proposals made in December 2008 and February 2009	Entities and persons attending JEDEC committee meetings where related technology was discussed

JEDEC meetings (“the 2008-2009 JEDEC Proposals”), including: <ul style="list-style-type: none"> • Committee Item Number 2192.21 • Committee Item Number 2192.22 • Committee Item Number 2192.32 • Committee Item Number 2204.03 	(including the JC-40 and JC-45 committee meetings). For example: <ul style="list-style-type: none"> • One or more employees of Samsung • One or more employees of Elpida • One or more employees of Inphi
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Prior Art to Asserted 11,016,918

A. U.S. Patents

Number	Filing Date	Issue Date	Named Inventors	Original Assignees
6,707,724	Feb. 6, 2002	Mar. 16, 2004	Do-Geun Kim; Myung-Ho Kim; Sung-Lae Cho; Hee-Dong Kim	Samsung Electronics Co., Ltd.
7,724,604	Oct. 25, 2006	May 25, 2010	Mike H. Amidi; Satyadev Kolli	SMART Modular Technologies, Inc.
8,054,664	Dec. 15, 2009	Nov. 8, 2011	Shiro Harashima; Wataru Tsukada	Elpida Memory, Inc.
8,189,328	Oct. 22, 2007	May 29, 2012	Ruban Kanapathippillai; Kenneth Alan Okin	Virident Systems, Inc.
8,243,488	Oct. 11, 2011	Aug. 14, 2012	Shiro Harashima; Wataru Tsukada	Elpida Memory, Inc.
8,275,936	Sep. 21, 2009	Sep. 25, 2012	Christopher Haywood; Gopal Raghavan; Chao Xu	Inphi Corporation
8,347,057	Aug. 13, 2010	Jan. 1, 2013	Yoji Nishio; Takao Ono	Elpida Memory, Inc.
8,462,535	Jul. 16, 2012	Jun. 11, 2013	Shiro Harashima; Wataru Tsukada	Elpida Memory, Inc.

B. U.S. Patent Application Publications

Number	Filing Date	Publication Date	Named Inventors
2006/0080515	Oct. 12, 2004	Apr. 13, 2006	John Spiers; Mark Loffredo; Mark G. Hayden; Mike A. Hayward
2006/0174140	Jan. 31, 2005	Aug. 3, 2006	Shaun L. Harris; Gary Williams; Eric C. Peterson; Jeffrey Allan Oberski
2009/0031099	Ju. 25, 2007	Jan. 29, 2009	Ronald H. Sartore

C. Non-U.S. Patent Application Publications

Country & Number	Filing Date	Publication Date	Named Inventors	Applicant
Japan 11-073762	August 28, 1997	March 16, 1999	Hiromi Okimoto; Yoshio Fudeyasu	Mitsubishi Electric Corporation
Japan 2006-156814	Nov. 30, 2004	June 15, 2006	Takayuki Ootani	Toshiba Corporation

D. Non-Patent Publications

Title	Publication Date	Page Numbers
[1945, von Neumann] “First Draft of a Report on the EDVAC”	1945	All
[1977, Scientific American]	1977	All
[1978, Backus] John Backus (1924-2007) 1977 ACM Turing Award lecture	Aug. 1978	All
[1983, Prince] “Semiconductor Memories”	1983	All
[1994, Markus] McGraw-Hill Electronics Dictionary, Fifth Edition	1994	All
[1994, Wulf] Bill Wulf “Hitting the Memory Wall: Implications of the Obvious.”	Dec. 1994	All
[1999, Graf] Modern Dictionary of Electronics, Seventh Edition	1999	All
[2000, IEEE] The Authoritative Dictionary of IEEE Standards Terms, Seventh Edition	2000	All
[2001, Gibilisco] The Illustrated Dictionary of Electronics, Eighth Edition	2001	All
[2004, Vogt] “Fully Buffered DIMM (FB-DIMM) Server Memory Architecture: Capacity, Performance, Reliability, and Longevity”	February 18, 2004	All

Title	Publication Date	Page Numbers
[2005, Haas] “Fully-Buffered DIMM Technology Moves Enterprise Platforms to the Next Level” authored by Jon Haas, https://web.archive.org/web/20060107230729/http://www.intel.com/technology/magazine/computing/fully-buffered-dimm-0305.htm	March 2005	All
[2005, Laplante] Comprehensive Dictionary of Electrical Engineering, Second Edition	2005	All
[2005, Nasr] Rami Nasr “FBSIM and the Fully Buffered DIMM Memory System Architecture.”	2005	All
[2007, Chen] “The VLSI Handbook, Second Edition,”	2007	All
[2008, Garrou] Garrou et al “Handbook of 3D Integration”	2008	All
[2008, Jacob] Jacob, Memory Systems Cache, DRAM, Disk	2008	All
[2008, Samsung] DDR3 SDRAM Specification, 240-pin Registered DIMM Based on 1 Gb D-Die 72-bit ECC, one of Samsung’s early RDIMM products	Aug. 2008	All
[2008, Tan] Wafer Level 3-D ICs Process Technology	2008	All
[2009, Micron] “Micron Introduces a New Way to Increase Server Memory Capacity and Improve Performance”], July, 2009, https://investors.micron.com/news-releases/news-release-details/micron-introduces-new-way-increase-server-memory-capacity-and	July 30, 2009	All
[2009, Micron] “Micron’s LRDIMM Redefines Server Memory Modules”, July, 2009, https://hothardware.com/news/microns-lrdimm-redefines-server-memory-modules	July 31, 2009	All
[2009, Micron] Registered DIMM (RDIMM), DDR3 1.5V SDRAM RDIMM, 2GB, Data Sheet, one of Micron’s early RDIMM products	2009	All
[2009, Samsung] Samsung Semiconductor Product Selection Guide - Memory and Storage	Jan. 2009	All
[2010, Inphi] “Enabling Cloud Computing and Server Virtualization with Improved Power Efficiency”	2010	All
[2010, Micron] Load Reduced DIMM, DDR3 1.35V SDRAM LRDIMM, 32GB (part number MT72JSZS4G72LZ), Data Sheet, one of Micron’s early LRDIMM products	2010	All

Title	Publication Date	Page Numbers
[2011, Inphi] “Inphi to Present at JEDEC's Server Memory Forum 2011”, https://www.globenewswire.com/en/news-release/2011/10/27/1058510/0/en/Inphi-to-Present-at-JEDEC-s-Server-Memory-Forum-2011.html	Oct. 27, 2011	All
A Highly Integrated Power Management IC for Advanced Mobile Applications by Shi et al. (“Shi”)	2006	All
https://phys.org/news/2005-02-samsung-world-ddr-memory-prototype.html	Feb. 17, 2005	All
https://www.eetimes.com/micron-rolls-ddr3-lrdimm/ , “Micron rolls DDR3 LRDIMM”, July, 2009	July 30, 2009	All
Texas Instruments TPS65023 Datasheet (“TI TPS65023 Datasheet”)	June 2006	All
The IRU3048 Dual Synchronous PWM Controller Circuitry and LDO Controller from International Rectifier	Sept. 12, 2002	All

E. Prior Art Systems and Inventions Known or Used by Others⁵

Title/Description	Date of Use/Knowledge	Page Numbers
[2001, JEDEC] “Terms, Definitions, and Letter Symbols for Microcomputers, Microprocessors, and Memory Integrated Circuits” (JEDEC Standard JESD100B.01)	Dec. 2002	All
[2002, JEDEC] PC133 SDRAM Registered DIMM Design Specification, Revision 1.4 (Standard 21-C)	Feb. 2002	All
[2003, Samsung] 256 MB DIMM, with eight DDR SDRAM memory chips, 133 MHz, part number M366S3253ETS-C7A	2003	
[2006, JEDEC] Instrumentation Chip Data Sheet for FBDIMM Diagnostic Senselines (JESD82-22)	November 2006	All
[2006, JEDEC] PC2-4200, PC2-3200 DDR2 Registered Mini-DIMM Design Specification, Revision 2.0	Aug. 2006	All

⁵ Samsung’s identification of prior art in this section should not be construed as an admission that such prior art does not also qualify as another category of prior art such as a printed publication.

Title/Description	Date of Use/Knowledge	Page Numbers
[2007, JEDEC] “Terms, Definitions, and Letter Symbols for Microelectronic Devices” (Standard JESD99B)	May 2007	All
[2007, JEDEC] Appendix X-Serial Presence Detect (SPD) for Fully Buffered DIMM (Standard 21-C)	2007	All
[2007, JEDEC] FBDIMM - Architecture and Protocol Standard (JESD206)	January 2007	All
[2007, JEDEC] FBDIMM Specification - DDR2 SDRAM Fully Buffered DIMM (FBDIMM) Design Specification (JESD205)	March 2007	All
[2008, JEDEC] FBDIMM Specification - High Speed Differential PTP Link at 1.5 V (JESD8-18A)	March 2008	All
[2008, JEDEC] Fully Buffered DIMM Design for Test, Design for Validation (DFx) (JESD82-28A)	July 2008	All
[2009, JEDEC] FBDIMM Advanced Memory Buffer (AMB) (JESD82-20A)	March 2009	All
[2010, JEDEC] PC2-6400, PC2-5300, PC2-4200, PC2-3200 Registered DIMM Design Specification, Revision 4.04	Jan. 2010	All
[2011, JEDEC] “Server Memory Trends - Past and Future	2011	All
[2011, Washkewicz and JEDEC] DDR3 Memory Buffer - Buffer at the Heart of the LRDIMM Architecture	2011	All
Ballot JC42.2-04-76, Item 1480.01	Feb. 2005	All
JEDEC Board of Directors Ballot, Committee Item 1325.19	Dec. 6-10, 2004	All
JEDEC Standard DDR2 SDRAM Specification, JESD79-2B (“JESD79-2B”)	January 2005	All
JEDEC Standard Double Data Rate (DDR) SDRAM Specification, JESD79 (“JESD79”)	June 2000	All
JEDEC Standard FBDIMM Specification: DDR2 SDRAM Fully Buffered DIMM (FBDIMM) Design Specification, JESD205 (“JESD205”)	March 2007	All
JEDEC Standard FBDIMM: Advanced Memory Buffer (AMB), JESD82-20 (“JESD82-20”)	March 2007	All
Minutes of Meeting No. 110, JC-42.3 Volatile RAM, Montreal (“JC-42.3 Meeting No. 110 Minutes”)	June 2004	All

Title/Description	Date of Use/Knowledge	Page Numbers
Minutes of Meeting No. 120, JC-42.3 Volatile RAM Committee, Maui (“JC42.3 Meeting No. 120 Minutes”)	Dec. 2006	All
Minutes of Meeting No. 13, JC-45 Module Committee, Maui (“JC-45 Meeting No. 13 Minutes”)	Dec. 2006	All
Minutes of Meeting No. 148, JC-40 Digital Logic Committee, Maui (“JC-40 Meeting No. 148 Minutes”)	Dec. 2006	All
Minutes of Meeting No. 149, JC-40 Digital Logic Committee, New Orleans (“JC-40 Meeting No. 149 Minutes”)	March 2007	All

Prior Art to Asserted 11,232,054

A. U.S. Patents

Number	Filing Date	Issue Date	Named Inventors	Original Assignees
6,707,724	Feb. 6, 2002	Mar. 16, 2004	Do-Geun Kim; Myung-Ho Kim; Sung-Lae Cho; Hee-Dong Kim	Samsung Electronics Co., Ltd.
7,724,604	Oct. 25, 2006	May 25, 2010	Mike H. Amidi; Satyadev Kolli	SMART Modular Technologies, Inc.
8,054,664	Dec. 15, 2009	Nov. 8, 2011	Shiro Harashima; Wataru Tsukada	Elpida Memory, Inc.
8,189,328	Oct. 22, 2007	May 29, 2012	Ruban Kanapathippillai; Kenneth Alan Okin	Virident Systems, Inc.
8,243,488	Oct. 11, 2011	Aug. 14, 2012	Shiro Harashima; Wataru Tsukada	Elpida Memory, Inc.
8,275,936	Sep. 21, 2009	Sep. 25, 2012	Christopher Haywood; Gopal Raghavan; Chao Xu	Inphi Corporation
8,347,057	Aug. 13, 2010	Jan. 1, 2013	Yoji Nishio; Takao Ono	Elpida Memory, Inc.
8,462,535	Jul. 16, 2012	Jun. 11, 2013	Shiro Harashima; Wataru Tsukada	Elpida Memory, Inc.

B. U.S. Patent Application Publications

Number	Filing Date	Publication Date	Named Inventors
2006/0080515	Oct. 12, 2004	Apr. 13, 2006	John Spiers; Mark Loffredo; Mark G. Hayden; Mike A. Hayward
2006/0174140	Jan. 31, 2005	Aug. 3, 2006	Shaun L. Harris; Gary Williams; Eric C. Peterson; Jeffrey Allan Oberski
2009/0031099	Ju. 25, 2007	Jan. 29, 2009	Ronald H. Sartore

C. Non-U.S. Patent Application Publications

Country & Number	Filing Date	Publication Date	Named Inventors	Applicant
Japan 11-073762	August 28, 1997	March 16, 1999	Hiromi Okimoto; Yoshio Fudeyasu	Mitsubishi Electric Corporation
Japan 2006-156814	Nov. 30, 2004	June 15, 2006	Takayuki Ootani	Toshiba Corporation

D. Non-Patent Publications

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[1945, von Neumann] “First Draft of a Report on the EDVAC”	1945	All
[1977, Scientific American]	1977	All
[1978, Backus] John Backus (1924-2007) 1977 ACM Turing Award lecture	Aug. 1978	All
[1983, Prince] “Semiconductor Memories”	1983	All
[1994, Markus] McGraw-Hill Electronics Dictionary, Fifth Edition	1994	All
[1994, Wulf] Bill Wulf “Hitting the Memory Wall: Implications of the Obvious.”	Dec. 1994	All
[1999, Graf] Modern Dictionary of Electronics, Seventh Edition	1999	All
[2000, IEEE] The Authoritative Dictionary of IEEE Standards Terms, Seventh Edition	2000	All
[2001, Gibilisco] The Illustrated Dictionary of Electronics, Eighth Edition	2001	All
[2004, Vogt] “Fully Buffered DIMM (FB-DIMM) Server Memory Architecture: Capacity, Performance, Reliability, and Longevity”	February 18, 2004	All

Title	Publication Date	Page Numbers
[2005, Haas] “Fully-Buffered DIMM Technology Moves Enterprise Platforms to the Next Level” authored by Jon Haas, https://web.archive.org/web/20060107230729/http://www.intel.com/technology/magazine/computing/fully-buffered-dimm-0305.htm	March 2005	All
[2005, Laplante] Comprehensive Dictionary of Electrical Engineering, Second Edition	2005	All
[2005, Nasr] Rami Nasr “FBSIM and the Fully Buffered DIMM Memory System Architecture.”	2005	All
[2007, Chen] “The VLSI Handbook, Second Edition,”	2007	All
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[2008, Jacob] Jacob, Memory Systems Cache, DRAM, Disk	2008	All
[2008, Samsung] DDR3 SDRAM Specification, 240-pin Registered DIMM Based on 1 Gb D-Die 72-bit ECC, one of Samsung’s early RDIMM products	Aug. 2008	All
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[2009, Micron] “Micron Introduces a New Way to Increase Server Memory Capacity and Improve Performance”], July, 2009, https://investors.micron.com/news-releases/news-release-details/micron-introduces-new-way-increase-server-memory-capacity-and	July 30, 2009	All
[2009, Micron] “Micron's LRDIMM Redefines Server Memory Modules”, July, 2009, https://hothardware.com/news/microns-lrdimm-redefines-server-memory-modules	July 31, 2009	All
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[2011, Inphi] “Inphi to Present at JEDEC's Server Memory Forum 2011”, https://www.globenewswire.com/en/news-release/2011/10/27/1058510/0/en/Inphi-to-Present-at-JEDEC-s-Server-Memory-Forum-2011.html	Oct. 27, 2011	All
A Highly Integrated Power Management IC for Advanced Mobile Applications by Shi et al. (“Shi”)	2006	All
https://phys.org/news/2005-02-samsung-world-ddr-memory-prototype.html	Feb. 17, 2005	All
https://www.eetimes.com/micron-rolls-ddr3-lrdimm/ , “Micron rolls DDR3 LRDIMM”, July, 2009	July 30, 2009	All
Texas Instruments TPS65023 Datasheet (“TI TPS65023 Datasheet”)	June 2006	All
The IRU3048 Dual Synchronous PWM Controller Circuitry and LDO Controller from International Rectifier	Sept. 12, 2002	All

E. Prior Art Systems and Inventions Known or Used by Others⁶

Title/Description	Date of Use/Knowledge	Page Numbers
[2001, JEDEC] “Terms, Definitions, and Letter Symbols for Microcomputers, Microprocessors, and Memory Integrated Circuits” (JEDEC Standard JESD100B.01)	Dec. 2002	All
[2002, JEDEC] PC133 SDRAM Registered DIMM Design Specification, Revision 1.4 (Standard 21-C)	Feb. 2002	All
[2003, Samsung] 256 MB DIMM, with eight DDR SDRAM memory chips, 133 MHz, part number M366S3253ETS-C7A	2003	
[2006, JEDEC] Instrumentation Chip Data Sheet for FBDIMM Diagnostic Senselines (JESD82-22)	November 2006	All
[2006, JEDEC] PC2-4200, PC2-3200 DDR2 Registered Mini-DIMM Design Specification, Revision 2.0	Aug. 2006	All

⁶ Samsung’s identification of prior art in this section should not be construed as an admission that such prior art does not also qualify as another category of prior art such as a printed publication.

Title/Description	Date of Use/Knowledge	Page Numbers
[2007, JEDEC] “Terms, Definitions, and Letter Symbols for Microelectronic Devices” (Standard JESD99B)	May 2007	All
[2007, JEDEC] Appendix X-Serial Presence Detect (SPD) for Fully Buffered DIMM (Standard 21-C)	2007	All
[2007, JEDEC] FBDIMM - Architecture and Protocol Standard (JESD206)	January 2007	All
[2007, JEDEC] FBDIMM Specification - DDR2 SDRAM Fully Buffered DIMM (FBDIMM) Design Specification (JESD205)	March 2007	All
[2008, JEDEC] FBDIMM Specification - High Speed Differential PTP Link at 1.5 V (JESD8-18A)	March 2008	All
[2008, JEDEC] Fully Buffered DIMM Design for Test, Design for Validation (DFx) (JESD82-28A)	July 2008	All
[2009, JEDEC] FBDIMM Advanced Memory Buffer (AMB) (JESD82-20A)	March 2009	All
[2010, JEDEC] PC2-6400, PC2-5300, PC2-4200, PC2-3200 Registered DIMM Design Specification, Revision 4.04	Jan. 2010	All
[2011, JEDEC] “Server Memory Trends - Past and Future	2011	All
[2011, Washkewicz and JEDEC] DDR3 Memory Buffer - Buffer at the Heart of the LRDIMM Architecture	2011	All
Ballot JC42.2-04-76, Item 1480.01	Feb. 2005	All
JEDEC Board of Directors Ballot, Committee Item 1325.19	Dec. 6-10, 2004	All
JEDEC Standard DDR2 SDRAM Specification, JESD79-2B (“JESD79-2B”)	January 2005	All
JEDEC Standard Double Data Rate (DDR) SDRAM Specification, JESD79 (“JESD79”)	June 2000	All
JEDEC Standard FBDIMM Specification: DDR2 SDRAM Fully Buffered DIMM (FBDIMM) Design Specification, JESD205 (“JESD205”)	March 2007	All
JEDEC Standard FBDIMM: Advanced Memory Buffer (AMB), JESD82-20 (“JESD82-20”)	March 2007	All
Minutes of Meeting No. 110, JC-42.3 Volatile RAM, Montreal (“JC-42.3 Meeting No. 110 Minutes”)	June 2004	All

Title/Description	Date of Use/Knowledge	Page Numbers
Minutes of Meeting No. 120, JC-42.3 Volatile RAM Committee, Maui (“JC42.3 Meeting No. 120 Minutes”)	Dec. 2006	All
Minutes of Meeting No. 13, JC-45 Module Committee, Maui (“JC-45 Meeting No. 13 Minutes”)	Dec. 2006	All
Minutes of Meeting No. 148, JC-40 Digital Logic Committee, Maui (“JC-40 Meeting No. 148 Minutes”)	Dec. 2006	All
Minutes of Meeting No. 149, JC-40 Digital Logic Committee, New Orleans (“JC-40 Meeting No. 149 Minutes”)	March 2007	All

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CERTIFICATE OF SERVICE

I certify that on March 17, 2023, a true and correct copy of the foregoing was served on counsel of record for Plaintiff via electronic mail.

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